CALFED Bay-Delta Program
Economic Impacts Team

Proposed Approach for Impact Analysis

The Phase II economic impact analysis will address the following resource areas:

- Agricultural economics
- Municipal and Industrial economics
- Fish, Wildlife and Recreation economics
- Land Use economics
- Flood Control economics
- Power Production and Energy economics

Impact analysis for each resource category will be qualitative based on professional judgment of the Economic Impact Team (EIT). Qualitative analysis will indicate whether increases or decreases in benefits or costs are expected. Where pre-feasibility analysis provides additional detail, orders of magnitude of the increases or decreases may be provided.

This qualitative assessment of impacts will be based on information concerning proposed alternatives for solving Bay-Delta water supply reliability, water quality, levee system integrity, and ecosystem problems. The impact assessment for each resource category will use uniform assumptions about how a set of options in a given alternative will perform.

Analysis will be based primarily on existing sources of information. Examples of sources to be used in the impact analysis include:

- DWR Bulletin 160-93 and updated information available for the next Bulletin 160 update.
- EPA's Regulatory Impact Analysis of Bay-Delta Water Quality Standards (1994)
- Publicly available material prepared for CVPIA
- USBR Least-Cost Plan to Increase CVP Yield (1995)
- EIR/EIS Interim South Delta Water Management Plan
- DWR's Urban Water Use in California
- FEAT Report
- Local agency water management plans

EIT members will identify additional studies that are needed. EIT members familiar with analyses done for some of these studies may have access to results that can be interpolated or reasonably extrapolated for use in the CALFED impact analysis, and use of these quantitative results where appropriate. Use of this method will depend on the similarity of the studies to CALFED alternatives. Criteria for and use of this method will be based on the experience and judgment of EIT members.

Brief summaries of proposed economic impact assessment approaches for each resource category follow. The methods of analysis used in each approach depend on the kind of changes being proposed and their potential impacts on the specific resource category.

Land Use. Economic impact analysis for this resource category will analyze how acreage of open space habitat and acreage in agricultural production change in response to factors included in CALFED alternatives. These factors include, but may not be limited to: conveyance and storage facilities, the water use efficiency program, subsidence control, drainage control, and habitat acquisition.

To determine how potential changes in these factors will most likely change acreage of open space habitat and agricultural production, generalized spatial distribution and densities will be used.

Agriculture. Key indicators to be assessed in analyzing economic impacts of CALFED alternatives to the agricultural sector are: irrigated acreage and gross revenue; costs of production and net revenue; risk and uncertainty; and water use efficiency and cost. Some major factors included in potential CALFED alternatives that affect these indicators are: facilities that change the quantity and reliability of water supply delivered to agriculture; operational changes or increased flexibility that change the timing, quantity, or reliability of supply; drainage management or land retirement programs; water use efficiency standards; reductions in risk of or damage from flooding; financial incentives for drainage management; financing mechanisms for recovering program costs.

To assess how changes in these factors will most likely affect the key indicators, the impact analysis for this category will rely primarily on interpolating and extrapolating from results of recent studies and drawing conclusions. Publicly available portions of the materials prepared for the CVPIA Programmatic EIS analyze regional agricultural impacts caused by changes in water delivery, land retirement, increased water costs, and water conservation standards. The EPA Regulatory Impact Assessment also examined the impacts of changes in water delivery. The San Joaquin Valley Drainage Program and San Luis Unit Drainage Plan studied changes caused by drainage management. Finally, the Least-Cost Plan to Increase CVP Yield and several other studies analyzed the effects of various financial incentives on water use efficiency. Results of all these studies will be examined and, where appropriate, used to estimate potential magnitudes of impacts to agriculture.

Municipal and Industrial Water Supply. Principal indicators to be assessed in analyzing economic impacts of alternative options for this category are: water supply costs and water sales revenue of M&I water providers and net benefits at the end-user level. Major factors affecting these indicators are the water quality, amounts of water allotted to other uses, and the size, frequency, and duration of shortage experienced by the M&I end user.

To analyze how changes in these major factors will most likely affect M&I water supply costs, water sales revenue, and end-user net benefits, water treatment and damage costs (due to poor water quality) will be obtained from existing studies and economic literature, and supply cost data will be obtained from DWR and other major wholesale water distributors. Data on water prices and end-user costs have been compiled in various recent studies and will be updated as necessary to accommodate the scope of this analysis.

Fish, Wildlife, and Recreation. The economic impact analysis for this resource category will focus on evaluating changes in two major industries: ocean commercial and sport fishing for salmon and other anadromous fish species; and recreation use in areas affected by the CALFED Bay-Delta Program alternatives. Factors affecting the commercial and sport fishing sector are: the relative abundance of commercial and sport fish, and changes in recreation opportunities related to flows, reservoir levels, and water deliveries to refuges.

To analyze how the commercial and sport fishing sector responds to changes in the above relevant factors, potential changes in abundance of affected species will be identified based on the CALFED Bay-Delta Program's fisheries impact analysis. To analyze how the recreation sector responds to the above relevant factors, potential changes in recreation use at existing and new facilities will be identified based on results of the CALFED Bay-Delta Program's recreation impact analysis and on existing recreation spending profiles, which will be used to extrapolate potential impacts.

Flood Control. Flood control economic impact analysis will focus on the potential for levee failure, extent of potential flood damage, value of protected resources, and cost of flood damage protection.

Analysis of these factors will be based on infrastructure inventories, and on information gathered as a result of recent flood events. The Governor's FEAT report is scheduled to be available in mid-1997, and may be used as a source for portions of this information.

Power Production and Energy. Primary indicators to be assessed in impact analysis for this resource category are: the amount and value of capacity and energy output from hydroelectric resources; and the cost of power requirements for pumping. Major factors affecting these indicators include: rate, volume, and season of flows; water year type; volume, timing, and flexibility of power generation; energy prices; energy use during construction; energy pumping during operations/re-operations; and water treatment requirements.

To assess how changes in these factors may affect the primary indicators, projections and extrapolations from the following will be developed: results of DWRSIM and/or PROSIM and post-processing output used to define operational impacts of CALFED alternatives; estimates of capacity and energy prices as reported in the CVPIA PEIS; studies completed for the California Energy Commission and other studies.

Regional Economic and Fiscal Impacts. Major indicators to be analyzed in impact analysis for this category are income, employment, and state and local revenues.

To assess how changes in the above factors will most likely affect state and local revenues, changes (from baseline projections) in revenue and expenditures levels, fund balances, reserve bonding capacities and bond ratings will be evaluated. Analysis of total fiscal impacts for each ROI will use net fiscal effects, based on the projected increase or decrease in revenues minus the projected increase or decrease in expenditures, plus potential effects on bonding capacity and bond ratings.